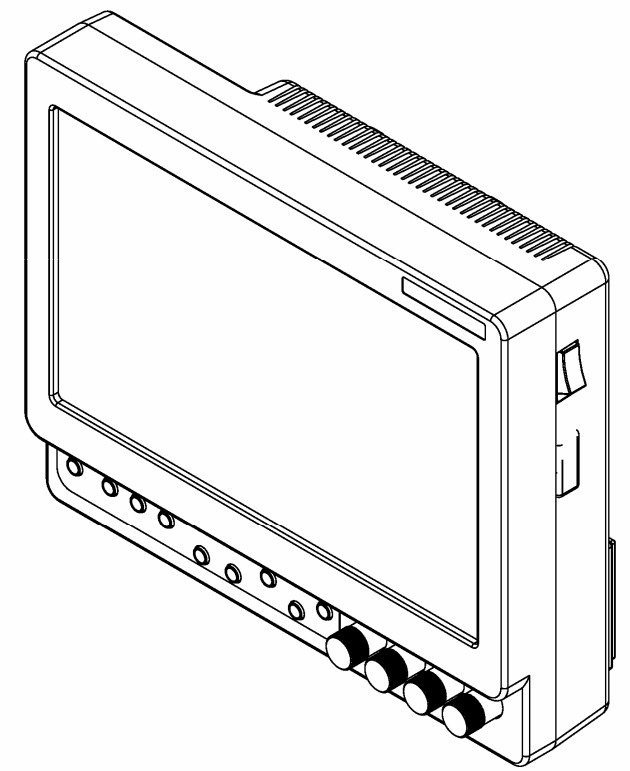
Marshall Electronics

V-LCD70P-3GSDI

7” High Resolution Field Monitor



Operating Instructions

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Product Overview

The V-LCD70P-3GSDI is a 7.0” high-definition widescreen LCD monitor featuring our completely digital TFT-MegaPixel active matrix LCD platform. With built-in focus assist and false color filters, this monitor is ideal as a light-weight high resolution viewfinder or focus-assist monitor. Our proprietary digital signal processing features 10-bit A/D conversion of all analog signals, with 4X over-sampling and 5-line super-adaptive 2D comb filtering of composite signals. De-interlacing is performed using our HyperProcess algorithm with motion adaptive interpolation. Multi-format compatibility accommodates virtually all video formats including NTSC/PAL, 480i/p, 720p, 1080i/p. The 3G-SDI input supports *Triple Rate* 3G/HD/SD video signals. Adjustable color temperature enables the most precise color representation possible. Advanced features include aspect ratio settings, a variety of screen markers, underscan mode, blue-only mode, monochrome mode, H/V delay, Pixel-to-Pixel mode, and 3G-SDI Input Format selection.

Features

- **High-Resolution 7.0” Widescreen Panel**
  The V-LCD70P-3GSDI features an all-digital TFT-MegaPixel active matrix LCD system with 1.2 million pixels. The LCD panel features a brightness of 250 cd/m^2 and a contrast ratio of 400:1 making the display ideal in a variety of environments and lighting conditions.

- **Multi-Format Compatibility**
  The V-LCD70P-3GSDI accommodates many video standards with **Composite Video**, **YPbPr and 3G-SDI** inputs. Accepted formats include NTSC/PAL, 480i/p, 576i/p, 720p, 1035i, 1080i, as well as 3G 4:2:2 including 1080p-60.

- **End-to-End Digital Signal Processing**
  Analog input signals are digitized using an advanced 10-bit process with 4x over-sampling, 5-line super-adaptive 2D comb filtering, and exacting color space conversion. Video is scaled to fit on the screen in the highest possible resolution using a state-of-the-art LSI that incorporates precision gamma correction and our HyperProcess motion adaptive interpolation for interlaced images.

- **ColorMatch Conversion with Color Temperature Adjustment**
  Emulation of SMPTE-C/EBU color space allows the V-LCD70P-3GSDI to replace any broadcast CRT monitor. Presets include D55, D65 and D93. Bias and Gain adjustment for each color enables precise color matching and white balance.

- **Focus-Assist, False Color Filter, and other Advanced Features**
  Focus-Assist, False Color filter, Aspect ratio settings, underscan mode, blue-only mode, monochrome mode, and H/V delay are a few of the advanced features which make the V-LCD70P-3GSDI at home in any broadcast environment. The 3G-SDI Input allows display of incoming SDI, HD-SDI and 3G formats in the 4:2:2 YUV color space. Pixel-to-Pixel mode also allows native display of any incoming image format.

- **Flexible Screen Markers**
  A variety of screen markers in 4:3, 16:9, and full screen modes allow accurate monitoring of the different aspect ratios used in broadcast environments.

- **User-Definable Function Buttons**
  Four user-definable function buttons on the front-panel allow quick access to numerous settings and features including focus-assist, false color filter, aspect ratio, screen markers, monochrome mode, color temperature, delay mode, and more.

- **User-Interchangeable Battery Adapters**
  Several battery adapter options accommodate a wide variety of professional batteries and camcorder batteries.

Installation and Initial Setup

Unpacking

Carefully unpack the V-LCD70P-3GSDI monitor and verify that the following items are included:

- V-LCD70P-3GSDI Monitor
- V-PS12-5V-XLR Power Supply with 4-Pin Female XLR Connector
- Operating Instructions

Inspect the unit for any physical damage that may have occurred during shipping. Should there be any damage, immediately call Marshall Electronics Customer Service at (800) 800-6608. If you are not located within the continental United States, call +1 (310) 333-0606.

Mounting

The V-LCD70P-3GSDI monitor features a ¼"-20 mounting hole on the underside of the enclosure, allowing the monitor to be mounted to a camera or other device using a variety of mounts.

Changing the Battery Adapter

The V-LCD70P-3GSDI ships with a single battery adapter, specified at the time of ordering. Several other battery adapters are available to accommodate a variety of batteries.

- Six user-interchangeable "camcorder battery" adapters are available: **Canon**, **Panasonic**, **JVC**, **Sony BP**, **Sony NP-Q**, and **Sony NP-F**.

  Installation: To uninstall one of the above battery adapters, remove the 5 screws on the adapter. Remove the adapter and carefully disconnect the 4-pin connector between the monitor and adapter. To install one of the above battery adapters, connect the 4-pin connector of the new battery adapter to the monitor, and re-install the 5 screws.

  Note: Do not change the pinout of the 4-pin connector on the battery adapter. This pinout is factory-configured according to each battery adapter.

- **IDX** and **Anton Bauer** battery adapters are available, but must be factory installed. Contact Marshall Electronics Customer Service at (800) 800-6608 for further information.

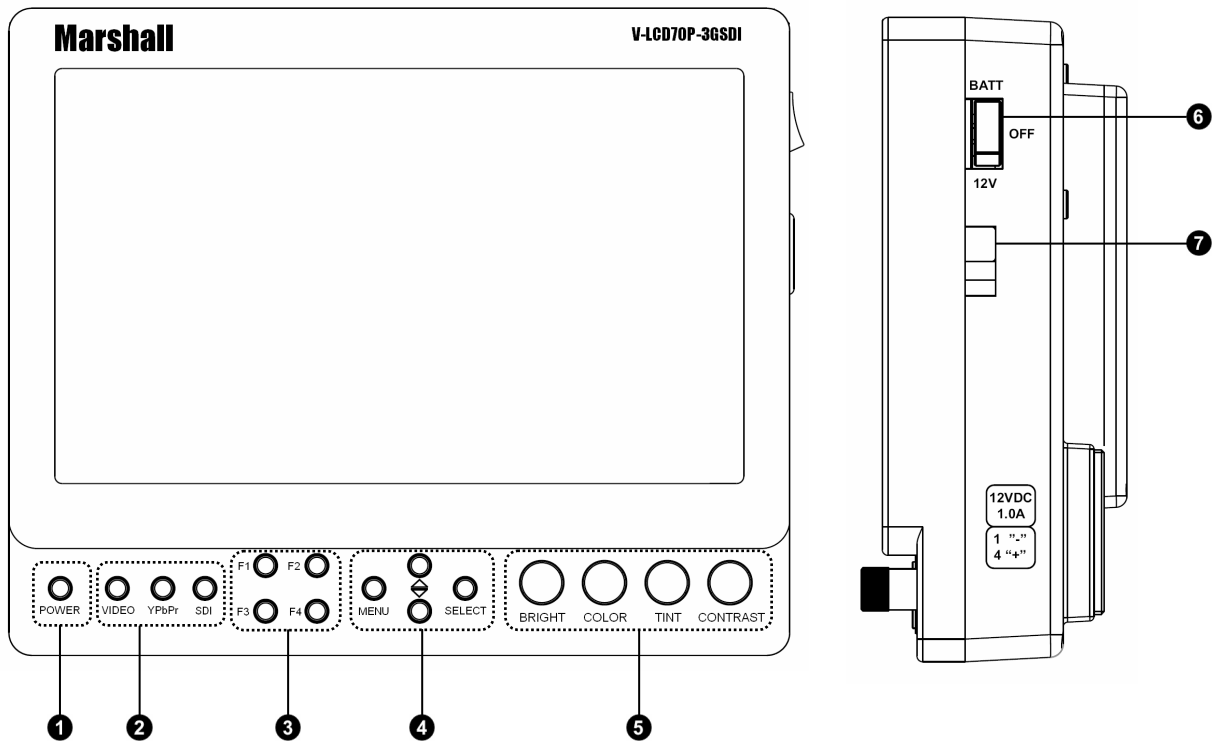
Connections and Power-On

Plug the V-PS12-5V-XLR power supply into an AC power source (100-240 V @ 50/60 Hz). Attach the 4-pin female XLR connector to the back of the monitor. Please note that 12VDC can be also supplied directly to the monitor from a variety of sources. The monitor will draw no more than 1.0 Amps at 12 Volts in operation (12 Watts).

Connect the required cables for video signal input and output. (Power must be applied to the V-LCD70P-3GSDI for the active loop-through outputs to be activated.) All BNC connectors are rated at 75Ω.

The unit defaults to 'ON' when power is supplied. Video will automatically be detected and displayed on the screen.

Front and Side Panel Features



❶ **Power Button**
Use the power button to toggle between ON and STANDBY modes. In the STANDBY state, the LED on the button will illuminate bright green. In the ON state, the LED will dimly illuminate green.

❷ **Input Select Buttons**
Use the VIDEO, YPbPr, and SDI buttons to select the corresponding analog or digital input. Video standards (NTSC/PAL, etc.) are automatically detected.

❸ **User-Definable Function Buttons**
Four user-definable function buttons can be used for direct access to various settings. Functions are assigned using the on-screen menu **(See User-Definable Function Buttons – Page 17)**.

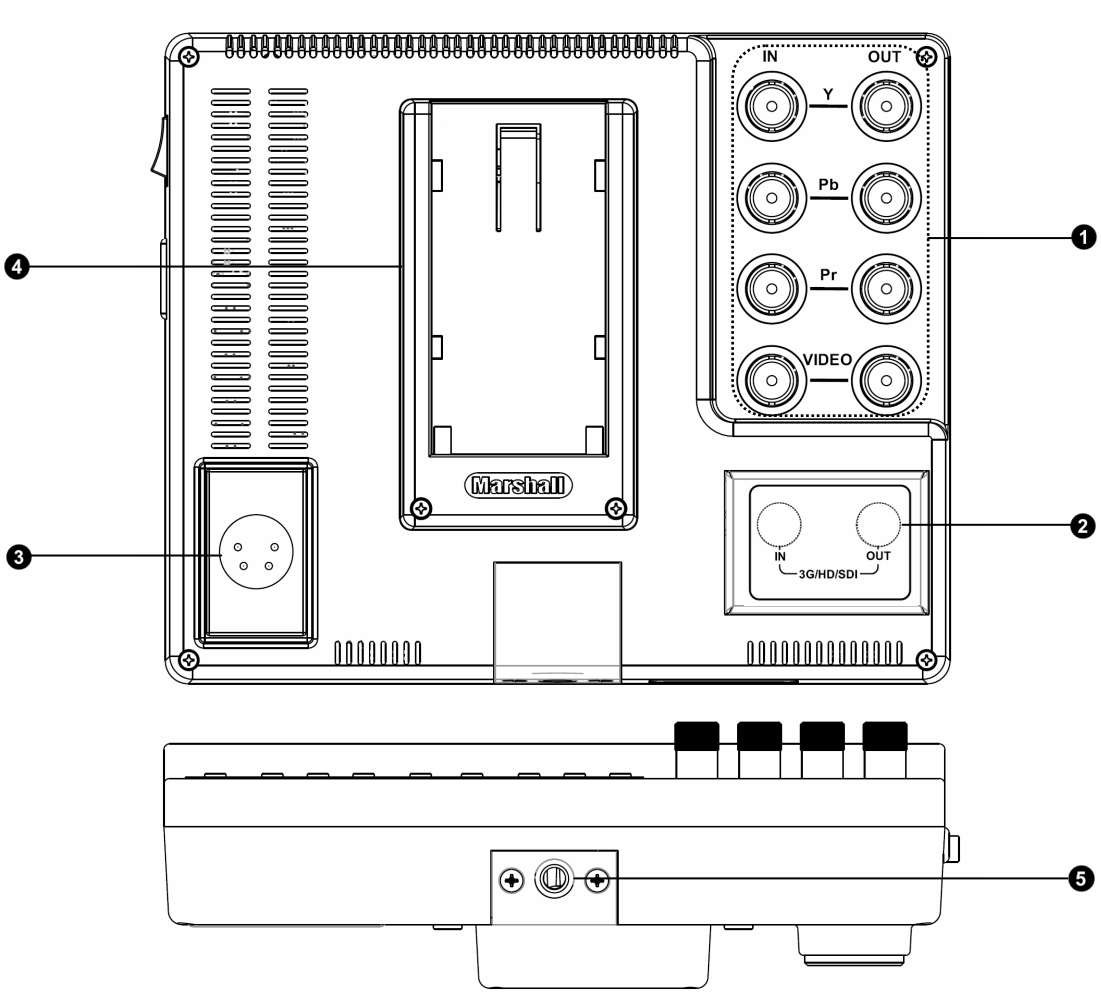
❹ **Menu Navigation Buttons**
Use the Menu, ▲, ▼, and **Select** buttons to display and navigate the on-screen menu **(See Main Menu and Navigation – Page 9)**.

❺ **Image Adjustment Knobs**
Use the image adjustment knobs to adjust color saturation, brightness and contrast of the image. The status of each image adjustment parameter is shown on the bottom left of the screen, with values ranging from 0 to 100. Default value is 50.

❻ **Power Switch**
Use the hard power switch to supply power to the monitor, and choose the input from which the monitor draws power. The upper switch position uses the battery adapter, the lower switch position uses the XLR input, and the center position is OFF. Battery life can be preserved by setting this switch to the OFF position when the monitor is not in use.

❼ **Service Connector**
This connector is for factory and future use.

Rear Panel Features



❶ **Component and Composite Input and Output**
The V-LCD70P-3GSDI has HD component (YPbPr) and composite input. There is as an active loop-through output for each analog input. See page 8 for supported video formats. The BNC inputs are internally terminated with 75 ohms.

❷ **3G-SDI Input Connector**
Connect Serial Digital Sources here. Accepted input formats can be found on page 8.

❸ **Power Input**
Connect 12VDC to the 4-Pin XLR power input connector. Power can be supplied from the included power supply, or from a variety of DC sources supplying at least 1 Amp at 12 Volts.

IMPORTANT: If using a power source other than the included power supply, be sure that the polarity of the DC input is correct:

Pin 1: GND
Pin 2: N/C
Pin 3: N/C
Pin 4: +12VDC

❹ **Battery Adapter**
The V-LCD70P-3GSDI can be powered from a variety of batteries. Several user-interchangeable battery adapters are available. See page 18 for available adapters.

❺ **¼-20 Mounting Hole**
Use the ¼-20 mounting hole to attach the monitor to a camera or variety of mounting devices.

Compatible Input Formats

Format	Composite	YPbPr	SD/HD-SDI
NTSC	☺		
PAL	☺		
480i		☺	
576i		☺	
480p / 59.94		☺	
576p / 50		☺	
720p / 60		☺	☺
720p / 59.94		☺	☺
720p / 50		☺	☺
720p / 30		☺	☺
720p / 29.97		☺	☺
720p / 25		☺	☺
1035i / 60		☺	
1035i / 59.94		☺	
1080i / 60		☺	☺
1080i / 59.94		☺	☺
1080i / 50		☺	☺
1080psF / 24		☺	☺
1080psF / 23.98		☺	☺
1080p / 30		☺	☺
1080p / 29.97		☺	☺
1080p / 25		☺	☺
1080p / 24		☺	☺
1080p / 23.98		☺	☺
3G-Formats **			
			3G-SDI
1080p / 60			☺
1080p / 59.94			☺
1080p / 50			☺

** 3G – Level A and B, 4:2:2 10 bit only supported

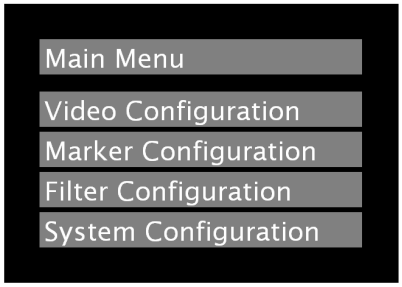
On-Screen Menu

STRUCTURE OVERVIEW

Main Menu	**Video Configuration**	**Color Temperature**	D93, D65, D55, User
		RGB Bias and Gain	R, G, B Bias (0-100) / R, G, B Gain (0-100)
		Check Field	Off, Mono, Blue, Green, Red
		Ratio	Full Screen, 4:3, 16:9
		Pixel-to-Pixel	Off, On
		H/V Delay	Off, H & V Delay, V Delay, H Delay
		Underscan	Off, On
		NTSC Black Level	0 IRE, 7.5 IRE
	Marker Configuration	**Markers**	Off, On
		Center Marker	Off, On
		16:9 Markers	Off, 4:3, 13:9, 14:9, 1.85:1, 2.35:1, 95% Safe, 93% Safe, 90%Safe, 88% Safe, 85% Safe, 80% Safe
		Full Screen Markers	Off, 95% Safe, 93% Safe, 90%Safe, 88% Safe, 85% Safe, 80% Safe
		4:3 Markers	Off, 95% Safe, 93% Safe, 90% Safe, 88% Safe, 85% Safe, 80% Safe
		Marker Background	Normal, Black
	Filter Configuration	**False Colors**	Off, On
		Peaking Filter	Off, On
		Mosquito Filter	Off, On
	System Configuration	**Input Format OSD**	5 sec, Off, On
		Function on F1	Ratio, Check Field, Mosquito Filter, Peaking Filter, False Colors, Freeze Input, Aspect Markers, Center Marker, Markers, Underscan, H/V Delay, Pixel-to-Pixel
		Function on F2	Ratio, Check Field, Mosquito Filter, Peaking Filter, False Colors, Freeze Input, Aspect Markers, Center Marker, Markers, Underscan, H/V Delay, Pixel-to-Pixel
		Function on F3	Ratio, Check Field, Mosquito Filter, Peaking Filter, False Colors, Freeze Input, Aspect Markers, Center Marker, Markers, Underscan, H/V Delay, Pixel-to-Pixel
		Function on F4	Ratio, Check Field, Mosquito Filter, Peaking Filter, False Colors, Freeze Input, Aspect Markers, Center Marker, Markers, Underscan, H/V Delay, Pixel-to-Pixel
		Freeze Input	Freeze, Off
		Manufacturer Default	Select
		Version Number Display	*(Software Version Number Displayed)*

MAIN MENU AND NAVIGATION

Access the main menu by pushing and holding the **MENU** button on the front panel of the monitor.



Main Menu

- Step through menu items using the ▲ and ▼ buttons.
- Choose a submenu or select a menu item by pressing **SELECT**.
- Return to the previous menu by pressing **MENU**.
- Exit the main menu by pressing **MENU**. The menu will automatically time out after about 15 seconds.

VIDEO CONFIGURATION SUBMENU

Video Configuration Submenu

■ Color Temperature

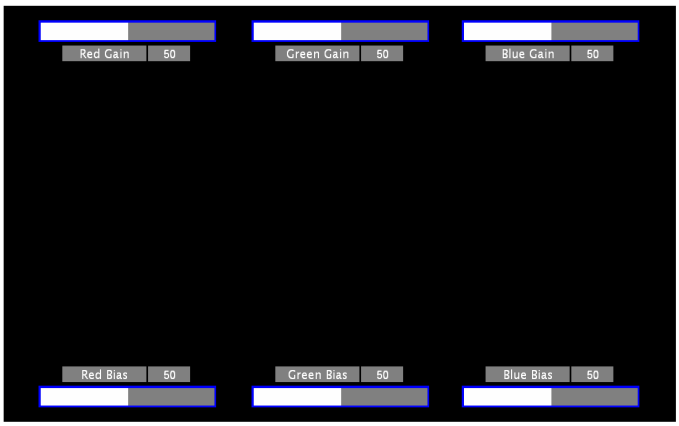
Use this setting to choose one of three color temperature presets:

- D55 (5500K)
- D65 (6500K)
- D93 (9300K)
- USER (Adjustable Color Bias and Gain)

■ RGB Bias and Gain

Select this submenu to fine-tune the monitor's color balance (R, G, B). This should only be done by someone experienced with video engineering, as this will alter the overall color shading of the screen. The purpose is to allow color matching to other types of monitors and/or displays. Note: The Color Temperature preset will automatically switch to USER when Color Bias settings are adjusted. It is normal for color bias adjustments to be very subtle.

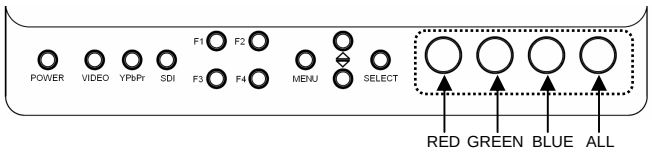
When selecting the RGB Bias and Gain submenu, gain adjustment indicators will appear at the top of the screen, and bias adjustment indicators will appear at the bottom of the screen:



RGB Bias and Gain Submenu

Use the ▲ and ▼ buttons to select each individual bias or gain control. Press SELECT to begin adjusting the control. Use the ▲ and ▼ buttons to increase or decrease the value.

Alternately, the image adjustment knobs (Brightness, Color, Tint, Contrast) can be used to easily adjust the bias and gain settings as shown below. The knobs affect whichever row of controls (gain or bias) is currently selected.



VIDEO CONFIGURATION SUBMENU (continued)

■ Check Field

Use the check field modes for monitor calibration or to analyze individual color components of an image. In Monochrome mode, all color is disabled and only a grayscale image is shown. In Blue, Green, and Red check field modes, only the selected color will be shown.

Use the following procedure when calibrating the monitor to SMPTE color bars with the following procedure:

1. Allow the monitor to warm up for at least 5-10 minutes.
2. Display SMPTE split-field color bars on the monitor using an external source.
3. Enable **Monochrome mode**.
4. Locate the pluge pattern (super black, black, and gray bars) at the lower-right corner of the screen. Adjust the **Brightness** knob until there is no visible difference between the super black and black bars, but the gray bar is still visible.
5. Adjust the **Contrast** knob until an even grayscale appears along the top bars.
6. Disable **Monochrome mode**.
7. Enable **Blue Check Field mode** and adjust the **Color** knob so that the outermost bars (white and blue) appear to match in brightness.
8. Composite NTSC only: Adjust the **Tint** knob until the third bar from the left (cyan) and the third bar from the right (magenta) appear to match in brightness.
9. Disable **Blue Check Field mode**.

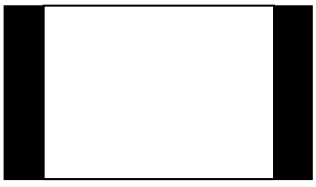
■ Aspect Ratio Settings

Use to switch between Full Screen, 4:3 and 16:9 aspect ratios.

As the V-LCD70P-3GSDI monitor has a native resolution of 800 x 480 RGB pixels, incoming images are automatically scaled to fit the screen:

- In Full Screen, images are scaled to fill the entire screen.
- In 4:3 mode, images are scaled to fill the maximum 4:3 portion of the screen (640 x 480), with black bars filling the remainder of the screen.
- In 16:9 mode, images are scaled to fill the maximum 16:9 portion of the screen (800 x 450), with black bars filling the remainder of the screen.

Full Screen



4:3 Mode

16:9 Mode

Note: The aspect ratio setting is ignored when Pixel-to-Pixel mode is enabled.

On-Screen Menu (continued)

VIDEO CONFIGURATION SUBMENU (continued)

■ Pixel-to-Pixel Mode

Use this setting to enable Pixel-to-Pixel mode.

This mode bypasses the monitor's internal scaling function and displays incoming images in their native resolution and aspect ratio, with a one-to-one mapping:

- For incoming formats smaller than the native resolution of the LCD panel (800 x 480), the image will be displayed in the center of the screen using only the necessary LCD pixels. For example, NTSC images will occupy exactly 720 x 480 pixels. The surrounding pixels will be black.
- For incoming formats exceeding 800 x 480 pixels, only the center 800 x 480 of the incoming image will displayed occupying the whole screen, with the remainder of the picture cropped. For example, 1080i formats will both be cropped to 800 x 480 and displayed full-screen.

Note: Pixel-to-Pixel mode disables aspect ratio control and H/V Delay.

■ H/V Delay

Use this setting to enable one of three delay modes (H & V Delay, V Delay, H Delay):

- In H & V Delay mode, both horizontal sync and vertical sync are delayed, resulting in both horizontal and vertical blanking periods being shown on the screen.
- In V Delay mode, vertical sync is delayed so that the vertical blanking period is displayed on screen.
- In H Delay mode, horizontal sync is delayed so that the horizontal blanking period is displayed on the screen.

■ Underscan

Use this setting to enable or disable Underscan mode:

- When Underscan is OFF, the active portion of the video signal is displayed on the screen, with 0% overscan.
- When Underscan is ON, the image size is slightly reduced. This allows the user to clearly view the edges of the active video area.

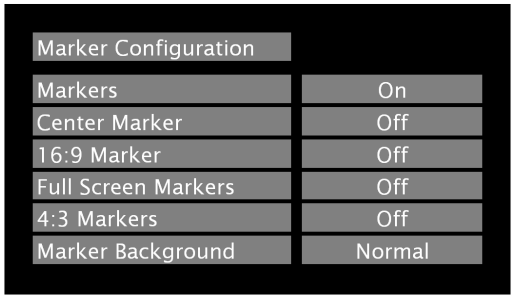
■ NTSC Black Level

Set the NTSC Black Level according to the type of NTSC composite video input:

- 7.5 IRE: Use this setting for standard NTSC-M signals which use a 7.5 IRE setup (black level).
- 0 IRE: Use this setting for NTSC-J signals which have no setup, or a black level of 0 IRE.

Note: This setting is disabled for PAL composite input and all component/3G-SDI formats.

MARKER CONFIGURATION SUBMENU



Marker Configuration Submenu

■ Markers

Use this setting to enable or disable all on-screen markers. This setting affects the center marker, full screen markers, 16:9 markers, and 4:3 markers.

■ Center Marker

Use this setting to display a center marker on the screen.

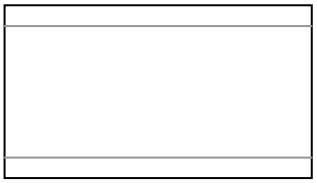
■ 16:9 Markers

Use these settings to superimpose one of 11 markers on the screen when in 16:9 mode.

- 4:3
- 13:9
- 14:9
- 1.85:1
- 2.35:1
- 95% Safe
- 93% Safe
- 90%Safe
- 88% Safe
- 85% Safe
- 80% Safe

16:9 Marker Examples:

OFF (No Marker)



2.35:1 Aspect Ratio

4:3 Aspect Ratio Marker

90% Safe Area

MARKER SETUP SUBMENU (continued)

■ 4:3 Markers / Full Screen Markers

Use this setting to superimpose one of 5 markers on the screen when in 4:3 or Full Screen mode. This setting is disabled when the aspect ratio is set to 16:9, or when Pixel-to-Pixel, Underscan, or H/V Delay is enabled.

- 95% Safe Area
- 93% Safe Area
- 90% Safe Area
- 88% Safe Area
- 85% Safe Area
- 80% Safe Area

4:3 Marker Examples:

OFF (No Marker)

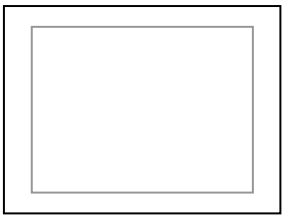
90% Safe Area

■ Marker Background

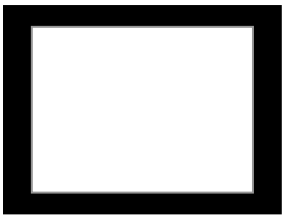
Use this setting to choose how selected markers are displayed on the screen:

- Normal The marker is superimposed on the complete image.
- Black Image area beyond the marker is shown at 0% intensity (black).

Example (80% Marker in 4:3 Mode):



Normal Background

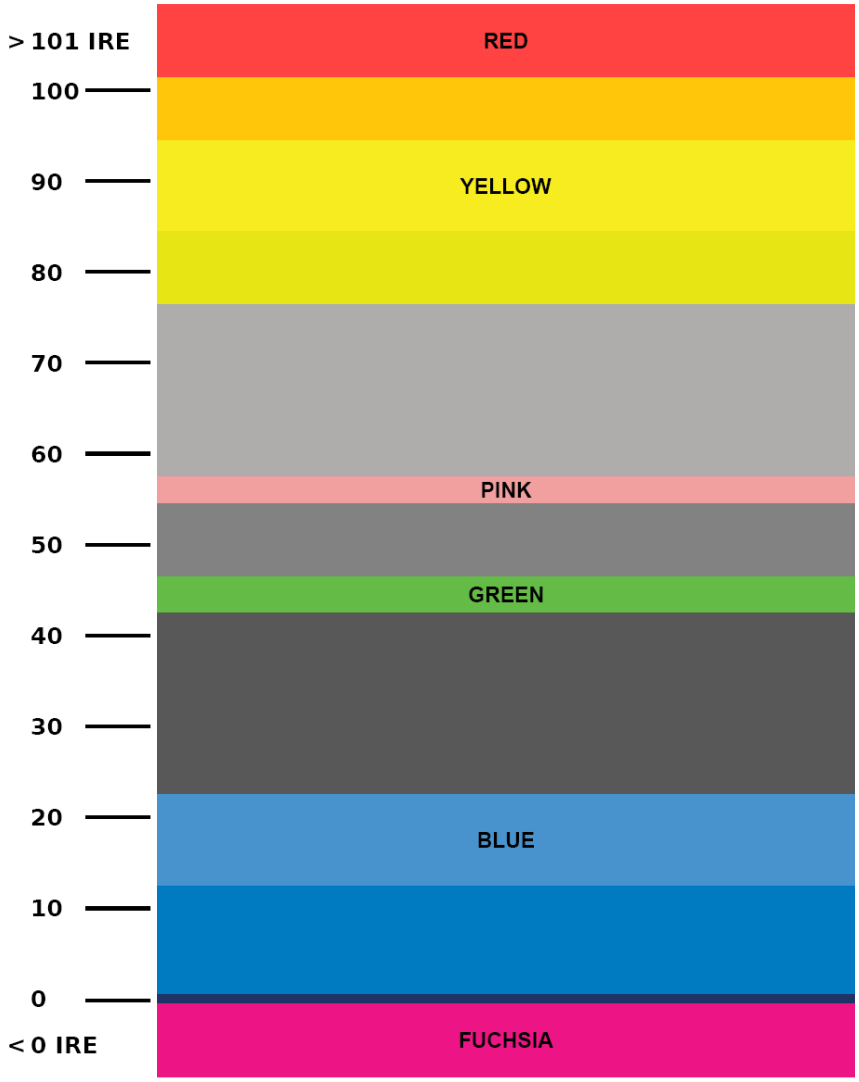


Black Background

FILTER CONFIGURATION SUBMENU

■ False Colors

This monitor has a false color filter to aid in the setting of camera exposure. As the camera Iris is adjusted, elements of the image will change color based on the luminance or brightness values. This enables proper exposure to be achieved without the use of costly, complicated external equipment. To best utilize this feature, you must understand the color chart below and have a basic understanding of camera exposure. Normally, when shooting subjects like people, it is common practice to set exposure of faces to the equivalent of approximately 56 IRE. The false color filter will show this area as the color PINK on the monitor. Therefore, as you increase exposure (open the IRIS), your subject will change color as indicated on the chart: PINK, then GREY, then a few shades of YELLOW. Over exposed subjects (above 101 IRE) on the monitor will be shown as RED. In addition, underexposed subjects will show as DEEP-BLUE to DARK–BLUE, with clipped-blacks indicated with a FUCHSIA-like color. Lastly, the color GREEN is used to indicate elements of the image that are approximately 45 IRE. This represents a 'neutral' or 'mid-level' exposure commonly used for objects (not people).



False Color Key

FILTER CONFIGURATION SUBMENU (continued)

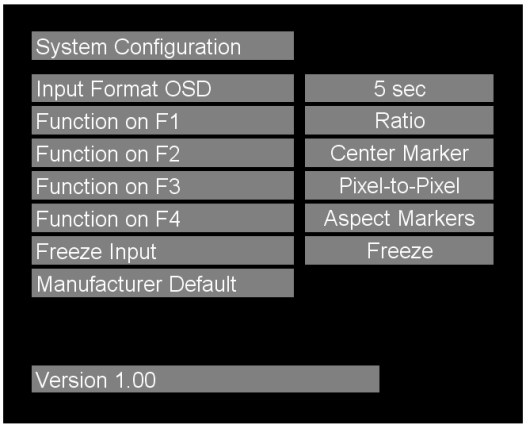
■ Peaking Filter (Focus assist)

The Peaking Filter is used to aid the camera operator in obtaining the sharpest possible picture. When activated, all color will be removed from the display and a black-and-white image will remain. The internal processor will display RED color on the screen where sharp edges appear. When the camera operator adjusts (racks) the focus control (on the camera lens), different parts of the image will have RED colored edges. This indicates that the portion of the image is sharp – or in focus. Final focus is achieved by racking the camera lens focus control back and forth until the desired portion of the image has RED colored edges. Please note that this feature is most effective when the subject is properly exposed and contains enough contrast to be processed.

■ Mosquito Filter

Use this setting to filter out “Mosquito Noise” – an artifact that appears as specs around edges of objects. This artifact is the result of video that has been compressed at some point. Video sources from DVD-Players, PDA’s, Digital Cable Boxes, Camcorders, etc. often have this artifact.

SYSTEM CONFIGURATION SUBMENU



System Configuration Submenu

■ Input Format OSD

Use this option to enable on-screen display of input/format status in the upper-left corner of the screen.

■ User-Definable Function Buttons

Use the **Function on F1, F2, F3 and F4** menu items to define each function button on the front panel of the monitor. The following options are available for each button:

- Ratio
- Check Field
- Mosquito Filter
- Peaking Filter
- False Colors
- Freeze Input
- Aspect Markers
- Center Marker
- Markers
- Underscan
- H/V Delay
- Pixel-to-Pixel

■ Freeze Input

Use the Freeze function to “freeze” the current image on the screen. Select this menu item again (Off) to return to the real-time video input.

■ Manufacturer Default

Select this menu item to reset all adjustments and menu settings to the factory default configuration.

Specifications

PANEL

Screen Size	7.0” Diagonal
Display Area (h x v)	152.40 x 91.44 mm
Aspect Ratio	15:9 (16:9 / 4:3 Selectable)
Pixels	800 x 480
Color Depth	18-bit (262,144 Colors)
Viewing Angle (h x v)	140°x 100°(CR >10)
Brightness	250 cd/m^2
Contrast Ratio	400:1
Dot Pitch (h x v)	0.0635 x 0.1905 mm
Pixel Pitch (h x v)	0.1905 x 0.1905 mm

VIDEO INPUT/OUTPUT

Video Input / Output
Supports SMPTE 170M, NTSC/PAL

YP_BP_R Input / Output
Supports SMPTE 260M, 274M, 296M

3G-SDI Input / Output
Supports SMPTE 292M, 259M, 424M

CONNECTORS

Video Input

Video	1 x BNC Female (75 Ω)
YP_BP_R	3 x BNC Female (75 Ω)

Video Output (Active Loop-Through)

Video	1 x BNC Female (75 Ω)
YP_BP_R	3 x BNC Female (75 Ω)

3G-SDI Input

3G-HD-SDI	1 x BNC Female (75 Ω)

3G-SDI Output (Active Loop-Through)

3G-HD-SDI	1 x BNC Female (75 Ω)

Power Input
4-Pin Male XLR

Pin 1:	GND
Pin 2:	N/C
Pin 3:	N/C
Pin 4:	+12VDC

ELECTRICAL

Power Consumption	1 Amp (Max) @ 12VDC (12 W Max)
Voltage Requirement	12VDC (10VDC-18VDC)

V-PS12-5V-XLR Power Supply:

Input	100V-240V, 1.5A, 50-60Hz
Output	12VDC, 5A, 60W Max

BATTERY ADAPTER

Field-Interchangeable Battery Adapter Options (Sold Separately):

Marshall Adapter	Battery Type	Battery Voltage	Recommended Battery
CM	Canon	7.4 V	Canon BP-970G
PM	Panasonic	7.2 V	Panasonic CGA-D54
JM	JVC	7.2 V	JVC BN-V438U
SB	Sony BP	14.4 V	Sony BP-U60
SM	Sony NP-Q	7.2 V	Sony NP-QM91
SL	Sony NP-F	7.2 V	Sony NP-F970

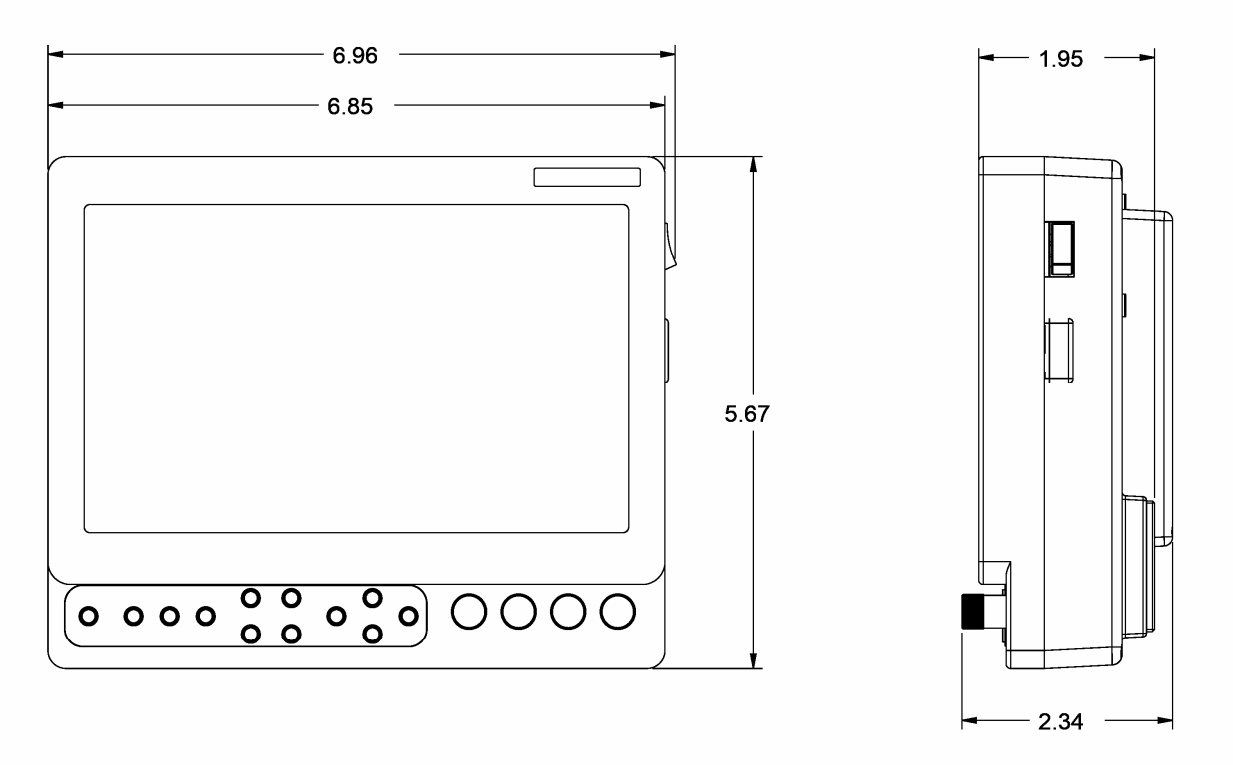
Factory Configured Battery Adapter Options:

Marshall Adapter	Battery Type	Battery Voltage	Recommended Battery
IDX	V-Mount	14.4 V	IDX E7S
AB	Anton Bauer	14.4 V	Anton Bauer Hytron 50

MECHANICAL

Dimensions (w x h x d):	6.85” x 5.67” x 1.95”
Additional Mounting:	¼”-20 Mounting Bracket
Weight (Monitor Only):	1.55 lbs
Operating Temperature	32°F to 95°F (0°C to 35° C)
Storage Temperature	-4°F to104°F (-20°C to 40° C)

RoHs — Do not dispose. Return to Manufacturer or Authorized Recycle Facility.



Maintenance

- **Screen Cleaning**
  Periodically clean the screen surface using ammonia-free cleaning wipes (Marshall Part No. **V-HWP-K**). A clean micro-fiber cloth can also be used using only non-abrasive and ammonia-free cleaning agents. Do not use paper towels. Paper towel fibers are coarse and may scratch the surface of the polycarbonate faceplate or leave streaks on the surface. Antistatic and fingerprint resistant cleaning agents are recommended. Do not apply excessive pressure to the screen to avoid damaging the LCD.

- **Faceplate Dusting**
  Dust the unit with a soft, damp cloth or chamois. Dry or abrasive cloths may cause electrostatic charge on the surface, attracting dust particles. Neutralize static electricity effects by using the recommended cleaning and polishing practice.

Warranty

Marshall Electronics warranties to the first consumer that this **V-LCD70P-3GSDI** LCD monitor will, under normal use, be free from defects in workmanship and materials, when received in its original container, for a period of one year from the purchase date. This warranty is extended to the first consumer only, and proof of purchase is necessary to honor the warranty. If there is no proof of purchase provided with a warranty claim, Marshall Electronics reserves the right not to honor the warranty set forth above. Therefore, labor and parts may be charged to the consumer. This warranty does not apply to the product exterior or cosmetics. Misuse, abnormal handling, alterations or modifications in design or construction void this warranty. *It is considered normal for a minimal amount of pixels, not to exceed three, to fail on the periphery of the display active viewing area.* Marshall Electronics reserves the option to refuse service for display pixel failure if deemed unobtrusive to effective use of the monitor by our technicians. No sales personnel of the seller or any other person is authorized to make any warranties other than those described above, or to extend the duration of any warranties on behalf of Marshall Electronics, beyond the time period described above. Due to constant effort to improve products and product features, specifications may change without notice.

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